

Appl. No. 10/632,257

Reply to Office Action of April 22, 2005

### REMARKS

In the April 22, 2005 Office Action, claims 1-6 and 13 were rejected. This Response amends claims 1 and 13 to clarify the meaning of a recited claim term. Support for the amendment can be found in Applicant's specification at, e.g., page 1, lines 21-27; no new matter has been presented. After entry of the foregoing amendments, claims 1-6 and 13 (7 total claims; 2 independent claims; no additional claim fees required) remain pending in the application. Reconsideration of the application is respectfully requested in view of the above amendments and the following remarks.

As an initial matter, the Office Action states that the Applicant's previous arguments with respect to claims 1-6 and 13 have been considered but are moot in view of the new rejection. Section 3 of the Office Action, however, repeats the previous §103 rejection of claims 1-6 and 13, citing the combination of Arnet and Kea. Applicant assumes that the inclusion of Section 3 in the April 22, 2005 Office Action was an unintended oversight. Nonetheless, in an abundance of caution Applicant incorporates herein the arguments contained in the Response dated February 18, 2005.

Claims 1-6 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Arefeen et al., USPN 6,313,602 (hereinafter "Arefeen") in view of Rebsdorf et al., USPN 6,337,804 (hereinafter "Rebsdorf"). Applicant traverses this rejection.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation to modify a reference or to combine the teachings of multiple references. Second, there must be a reasonable expectation of success. Third, the prior art must teach or suggest all of the recited claim limitations. Of course, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure. Applicant respectfully submits that the Examiner has not met all of the above criteria.

Arefeen generally discloses a three-phase voltage source inverter architecture (see Arefeen's FIG. 1 and FIG. 6) having eight states (see Arefeen's Table 1) that can be illustrated with a space vector diagram (see Arefeen's FIG. 2). The Office Action correctly points out that Arefeen does not disclose the recited step of sensing a low output frequency condition. Although the Office Action concludes that Arefeen discloses a low frequency condition,

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Applicant disagrees with that conclusion. In particular, the cited excerpt of Arefeen simply does not teach or suggest "a low output frequency condition corresponding to zero or low voltage across phases in the voltage source inverter while the voltage source inverter is receiving a constant DC link voltage" as recited in amended claim 1.

Rebsdorf generally discloses a wind turbine system that converts a variable AC input signal into a fixed frequency AC output signal. The input signal is wind-generated, and the frequency of the input signal varies with the wind speed. The Office Action states that Rebsdorf discloses the sensing of a low frequency condition and the utilization of the recited technique for purposes of thermal management. Applicant respectfully disagrees with this characterization of Rebsdorf.

The cited passage of Rebsdorf simply states a benefit of the Rebsdorf system, namely, that the use of smaller components can be used since the thermal stress on the switches will be equal. This brief mention of thermal stress does not teach or suggest the subject matter recited in Applicant's claims. In particular, Rebsdorf does not teach or suggest the sensing of a low output frequency condition, determining a zero vector modulation that is responsive to the detected low output frequency condition, and applying the determined zero vector modulation to reduce thermal stress. The cited passage of Rebsdorf does not specify how the Rebsdorf system achieves equal thermal stress on the switches.

Therefore, even assuming, *arguendo*, that the proposed combination of Arefeen and Rebsdorf is reasonable, the combination does not teach or suggest each and every claim limitation. Regarding independent claims 1 and 13, for example, the proposed combination does not teach or suggest the sensing of a low output frequency condition and the determination of a zero vector modulation responsive to the sensed low output frequency condition. For at least the above reasons, claims 1-6 and 13 are not unpatentable over Arefeen in view of Rebsdorf, and Applicant respectfully requests the withdrawal of the §103 rejection of those claims.

In conclusion, for the reasons given above, all claims now presently in the application are believed allowable. Should the Examiner have any questions or wish to further discuss this application, Applicants request that the Examiner contact the undersigned.

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If for some reason Applicant has not requested a sufficient extension and/or has not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 07-0960 for any fee which may be due.

Respectfully submitted,

Dated: 7-20, 2005

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